IN THE CLAIMS:

Please amend the claims as follows.

1. (Currently Amended) A system for quantifying baseline model quality, comprising:

an engine service database containing engine data;

a preprocessor for processing the engine data into a predetermined format;

an engine baseline modeling component that builds an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions; and

a model diagnostics component that evaluates the performance of the engine baseline model, wherein the model diagnostics component includes:

means for comparing engine data from a plurality of engines against the engine baseline model;

means for generating engine trends for each of the plurality of engines;

means for identifying correlations between the engine trends and various parameters; and

means for calculating, for each identified correlation, summary statistics relating to the degree of correlation, wherein the model diagnostics component uses the summary statistics to evaluate the performance of the engine baseline model, and wherein the system is configured to use the engine baseline model to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

2. (Original) The system of claim 1, wherein the means for identifying correlations between engine trends and various parameters further generate correlation coefficients for each identified correlation.

3. (Original) The system of claim 1, wherein the summary statistics include at least one of a standard deviation, a mean, or a histogram for each identified correlation.

4. (Original) The system of claim 3, wherein a good model is best represented by summary statistics tending toward zero.

5. (Currently Amended) A system for quantifying baseline model quality, comprising:

an engine service database containing engine data;

a preprocessor for processing the engine data into a predetermined format;

an engine baseline modeling component that builds an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions; and

a model diagnostics component that evaluates the performance of the engine baseline model, wherein the model diagnostics component includes:

means for evaluating, a subset of the engines used to create the model in time order against the generated baseline;

means for generating time-varying system trends;

means for plotting data points representative of the time-varying system trends over time;

means for fitting a smoothed curve to the plotted data points; and

means for computing residual errors for each point, wherein the model diagnostics component uses the residual errors to evaluate the performance of the engine baseline model, and wherein the system is configured to use the engine baseline model to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

6. (Original) The system of claim 5, wherein residual errors computed reflect the amount by which each trend point varies from the smoothed curve.

7. (Original) The system of claim 5, wherein the model diagnostics component further comprises:

means for estimating a sigma value by performing a root mean squared error calculation; and

means for generating summary statistics using the estimated sigma values.

8. (Original) The system of claim 7, wherein a good model is best represented by lower estimated sigma values.

9. (Currently Amended) A method for quantifying baseline model quality, comprising:

storing engine data in an engine service database;

processing the engine data into a predetermined format;

building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions;

evaluating performance of the engine baseline model ,wherein evaluating the performance of the engine baseline model comprises:

comparing engine data from a plurality of engines against the engine baseline model;

generating engine trends for each of the plurality of engines;

identifying correlations between the engine trends and various parameters; and

calculating, for each identified correlation, summary statistics relating to the degree of correlation;

wherein the method further comprises using the summary statistics to evaluate the performance of the engine baseline model, and wherein the engine baseline model is used to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

10. (Original) The method of claim 9, wherein identifying correlations between engine trends and various parameters further comprises generating correlation coefficients for each identified correlation.

11. (Original) The method of claim 9, wherein the summary statistics include at least one of a standard deviation, a mean, or a histogram for each identified correlation.

12. (Original) The method of claim 11, wherein a good model is best represented by summary statistics tending toward zero.

13. (Currently Amended) A method for quantifying baseline model quality, comprising:

storing engine data in an engine service database;

processing the engine data into a predetermined format;

building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions;

evaluating performance of the engine baseline model, wherein evaluating the performance of the engine baseline model comprises:

evaluating a subset of the engines used to create the model in time order against the generated baseline;

generating time-varying system trends;

plotting data points representative of the time-varying system trends over time;

fitting a smoothed curve to the plotted data points; and

computing residual errors for each point;

wherein the method further comprises using the residual errors to evaluate the performance of the engine baseline model, and wherein the engine baseline model is used to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

14. (Original) The method of claim 13, wherein residual errors computed reflect the amount by which each trend point varies from the smoothed curve.

15. (Original) The method of claim 13, further comprising:

estimating a sigma value by performing a root mean squared error calculation; and

generating summary statistics using the estimated sigma values.

16. (Original) The method of claim 15, wherein a good model is best represented by lower estimated sigma values.

17. (Currently Amended) A computer-readable medium ~~incorporating instructions for quantifying~~ storing computer instructions for instructing a computer system to quantify baseline model quality, the computer instructions comprising:

one or more instructions for storing engine data in an engine service database;

one or more instructions for processing the engine data into a predetermined format;

one or more instructions for building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions;

one or more instructions for evaluating performance of the engine baseline model, wherein evaluating the performance of the engine baseline model comprises:

one or more instructions for comparing engine data from a plurality of engines against the engine baseline model;

one or more instructions for generating engine trends for each of the plurality of engines;

one or more instructions for identifying correlations between the engine trends and various parameters; ~~and~~

one or more instructions for calculating, for each identified correlation, summary statistics relating to the degree of correlation; and

one or more instructions for using the summary statistics to evaluate the performance of the engine baseline model, wherein the engine baseline model is used to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

18. (Original) The computer-readable medium of claim 17, wherein the one or more instructions for identifying correlations between engine trends and various parameters further comprise one or more instructions for generating correlation coefficients for each identified correlation.

19. (Original) The computer-readable medium of claim 17, wherein the summary statistics include at least one of a standard deviation, a mean, or a histogram for each identified correlation.

20. (Original) The computer-readable medium of claim 19, wherein a good model is best represented by summary statistics tending toward zero.

21. (Currently Amended) A computer-readable medium ~~for quantifying~~ storing computer instructions for instructing a computer system to quantify baseline model quality, the computer instructions comprising:

one or more instructions for storing engine data in an engine service database;

one or more instructions for processing the engine data into a predetermined format;

one or more instructions for building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions;

one or more instructions for evaluating performance of the engine baseline model, wherein evaluating the performance of the engine baseline model comprises:

one or more instructions for evaluating a subset of the engines used to create the model in time order against the generated baseline;

one or more instructions for generating time-varying system trends;

one or more instructions for plotting data points representative of the time-varying system trends over time;

one or more instructions for fitting a smoothed curve to the plotted data points; ~~and~~

one or more instructions for computing residual errors for each point; and

one or more instructions for using the residual errors to evaluate the performance of the engine baseline model, wherein the engine baseline model is used to perform at least one of monitoring engine status, predicting future engine behavior, diagnosing engine faults, determining engine performance, determining engine quality and designing new engine systems.

22. (Original) The computer-readable medium of claim 21, wherein residual errors computed reflect the amount by which each trend point varies from the smoothed curve.

23. (Original) The computer-readable medium of claim 21, further comprising:

one or more instructions for estimating a sigma value by performing a root mean squared error calculation; and

one or more instructions for generating summary statistics using the estimated sigma values.

24. (Original) The computer-readable medium of claim 23, wherein a good model is best represented by lower estimated sigma values.